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URBAN MUNICIPAL COLLECTION

THE HEALTH SCIENCES BRIEFS

VOLUME II: EDUCATION

URBAN MUNICIPAL
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GOVERNMENT DOCUMENTS

THE HEALTH SCIENCES BRIEFS

VOLUME II: EDUCATION

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Editor: JANET COCHRAN, BSc
Associate Editor: ELIZABETH BRAIN, MD

Editorial Committee:
MARJORIE BASKIN, BA
DOROTHY FITZGERALD, MLS
THOMAS FLEMMING, MLS
SUSAN FRENCH, PhD
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CHARLES ROLAND, MD
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THE HEALTH SCIENCES BRIEFS

VOLUME II: EDUCATION

The educational philosophy of the Faculty of Health Sciences acknowledges the broad,interdisciplinary scope of health care. The Faculty has a major educational goal: to produce health professionals who can deal proficiently and empathetically with a range of health care problems, function as part of a team, and remain self-directed learners capable of continuing their own education during their professional lives. The education programs of the Faculty emphasize problem-based, small group learning experiences which foster the development of self-directed learning and interdisciplinary cooperation.

ORGANIZATION

The Faculty is organized on the principle of a matrix in which the programs in education, research and health services cut across and draw from the resources of the academic departments and the School of Nursing. Each program is responsible to the appropriate Associate Dean (Education, Research, Health Services or Nursing), who in turn reports to the Council of the Faculty of Health Sciences and its executive committee (Faculty Executive) and the Dean, Health Sciences. The academic departments are headed by departmental chairmen who act as career development advisors and resource managers for their department members. The Associate Dean (Nursing) is responsible in a similar way for career development and resource management in the School of Nursing.

COORDINATION

Program coordination is the responsibility of the Health Sciences Education Committee. Under the chairmanship of the Associate Dean (Education) this

committee reviews and evaluates existing programs, makes recommendations regarding program priorities, establishes the principles regarding resource allocation, recommends approval for new educational programs or termination of specific programs, and recommends the appointment of Program Chairmen and other key officers. The Committee is composed of the chairman of each of the education committees, the director of the Program for Educational Development, the coordinator of Learning Resources and the administrator of Education Services.

ADMINISTRATION

The financial, personnel and administrative arrangements necessary for the operation of the educational programs are provided by the Administrator of Education Services.

CLINICAL COMPONENT

The clinical components of the education programs make use of hospitals and community health care practices in Hamilton and other communities and in facilities participating in the Northwestern Ontario Medical Program (NOMP).

ADMISSION POLICIES

Admission policies have been designed by the Faculty to permit students from a variety of academic backgrounds to enter the Health Sciences educational programs. Evidence of academic ability is required and is an important consideration. Personal characteristics and goals, however, are also major factors in the selection of candidates for all programs.

Applicants for positions in graduate work leading to the MSc or PhD degrees are interviewed before an offer is made. Shortlisted candidates for the MD program and the post RN stream of the BScN program are interviewed prior to final selection. These students are also assessed for their ability to study in the problem-oriented, self-directed learning environment of McMaster. Students entering the BScN program directly from Grade 13 are selected purely on their academic standing. Graduates of diploma nursing programs may apply to the post RN stream of the BScN program. Graduates of occupational and physical therapy diploma courses may extend their academic qualifications by taking a Bachelor of Health Sciences (BHSc) degree.

PROGRAMS

The Faculty of Health Sciences provides a wide variety of programs in education which address a broad range of interests. These include undergraduate, postgraduate and graduate programs; continuing education programs geared to the working health professional; and programs which deal specifically with educational research, faculty development, and the development of learning resources for the education programs. Each is directed by a chairman appointed by the Council of the Faculty of Health Sciences on the recommendation of the Health Sciences Education Committee, and each is represented by an education committee chaired by the program chairman.

The Faculty also collaborates with health professionals, universities and government in a number of community-based programs, participates in cooperative interfaculty programs within the University, and takes part in collaborative programs with Mohawk College of Applied Arts and Technology.

PROGRAMS

UNDERGRADUATE PROGRAMS

- Medicine – MD
- Nursing – BScN
- Occupational Therapy and Physiotherapy – BHSc (OT/PT)

POSTGRADUATE PROGRAMS

- Internship and Residency

GRADUATE PROGRAMS

- Medical Sciences – MSc, PhD
- Biochemistry – MSc, PhD
- Health Care Practice – MHSc

CONTINUING EDUCATION PROGRAMS

- Clinical Behavioural Sciences
- Continuing Medical and Nursing Education
- Occupational Health and Safety
- Academic Studies

EDUCATIONAL OUTREACH PROGRAMS

- Northwestern Ontario Medical Program
- Perinatal Outreach
- Primary Care Program (PC6)
- International Health

COOPERATIVE PROGRAMS

- Faculty of Business (Health Services Administration)
- The Faculty of Engineering (Biomedical Engineering)
- The Faculty of Humanities (History of Medicine and Medical Ethics)
- The Faculty of Science (Virology)
- The Faculty of Social Sciences, School of Physical Education (Adapted Human Biodynamics)
- Several Faculties (Statistics).

MOHAWK LIAISON PROGRAMS

EDUCATIONAL RESEARCH AND DEVELOPMENT

- Faculty Development
- Learning Resources
- Program for Educational Development

Undergraduate Programs

MEDICINE - MD PROGRAM

The program in Undergraduate Medicine, which graduated its first class of students in 1972, offers a course leading to the MD degree to which 100 students are admitted each year. The academic program operates year-round, making it possible for the student to qualify for the medical degree in three academic years.

The MD Program pioneered the use of health care problems as the central learning tool, and self-directed learning as the key learning strategy. In September, 1983 a revised curriculum was initiated. The main changes were a revised set of "end product" objectives, with a clearer definition of the knowledge and skills required for the future practice of medicine; a rearrangement of curriculum units; and increased flexibility in the duration and scope of the program for some students. A complete review of curriculum and evaluation material was undertaken, resulting in improved educational design and consistency, and an ongoing process of revision that allows for change. The central philosophy was unchanged.

Electives are an integral part of the undergraduate medical program. Students choose from a variety of clinical, educational, research or community experiences and assume joint responsibility with their advisors for planning elective experiences in areas which particularly interest them.

NURSING - BScN PROGRAM

The four-year Nursing program offers a course of study leading to a Bachelor of Science in Nursing degree (BScN). Approximately eighty students are admitted each year to Level I of the program. The curriculum is planned so that the biological, behavioural and health sciences, the humanities, and nursing are interrelated and span the entire program. The educational format of small group tutorials and self-directed learning promotes the development of self-evaluative skills and problem solving. The broad educational background facilitates continuing professional development and provides the necessary foundation for graduate study. The program provides students with a variety of educational experiences in acute, long-term and primary care and in community health settings.

Students working toward a degree are divided into three streams: graduates of Grade 13; special students from various backgrounds; and registered nurses who hold diplomas and have gained professional experience in the workplace. Students who hold an RN diploma may enter the program at Level III; if they enroll on a full-time basis they may complete the degree requirements in two years. Approximately twenty-five diploma registered nurses are admitted each year.

Graduates are eligible to write nurse registration examinations of the Canadian Nurses' Association Testing Service.

McMaster AV

(Left) Members of a tutorial group discuss aspects of a health care problem, the central learning tool of the Undergraduate MD program.

Students in the BScN program develop patient care skills under the guidance of their clinical supervisor.

OCCUPATIONAL THERAPY AND PHYSIOTHERAPY - BHSc PROGRAM

The Bachelor of Health Sciences Program is available to diploma graduates of the Mohawk College programs in Occupational Therapy or Physiotherapy and to diploma graduates in Occupational Therapy and/or Physiotherapy from other institutions. The synthesis of the theoretical and clinical components of practice is emphasized, providing the student with an opportunity for increased academic and scholarly preparation and an improved understanding of the health care problems of clients.

(Left)Occupational therapy helps a patient to regain occupational skills impaired by illness.

Physiotherapy assists a patient to reach an optimal personal level of functioning.

SPECIAL SUBJECT AREAS OR DISCIPLINES:

All three undergraduate programs emphasize an integrated, interdisciplinary approach to learning, addressing questions in special subject areas or disciplines which are relevant to several health professions. Because the undergraduate programs are not the prime responsibility of academic departments, another mechanism is necessary to deal with specific biological, sociological or behavioural questions. Disciplines such as Morphology, Microbiology, Pharmacology, Population Health and Ethics of Health Care have been named. A faculty member for each discipline is responsible for ensuring that health care problems include issues in these fields, and that students are provided with references for further study, or resource people who can provide the necessary information. In the MD program the activities of the disciplines are integrated by the Discipline Coordinator.

Postgraduate Programs

INTERNSHIP AND RESIDENCY

Programs are offered in specialties and subspecialties approved by the Royal College of Physicians and Surgeons and the College of Family Physicians of Canada.

The programs range from two to five years in length and are offered in the following disciplines: Anesthesia; Community Medicine; Family Medicine with a subspecialty of Emergency Medicine; Internal Medicine with its subspecialties of Cardiology, Clinical Immunology and Allergy, Dermatology, Gastroenterology, Geriatrics, Hematology, Infectious Diseases, Nephrology, Physical Medicine and Rehabilitation, Radiation Oncology, Respirology, and Rheumatology; Laboratory Medicine with its subspecialties of Anatomical Pathology, General Pathology, Hematological Pathology, Medical Biochemistry and Medical Microbiology; Obstetrics and Gynecology; Pediatrics; Psychiatry; Radiology; and Surgery, including General Surgery, Cardiovascular and Thoracic Surgery, Orthopedic Surgery, and Plastic Surgery.

The Faculty offers a rotating internship, and straight internships in Family Medicine, Internal Medicine, Pediatrics, Psychiatry and Surgery.

Graduate Programs

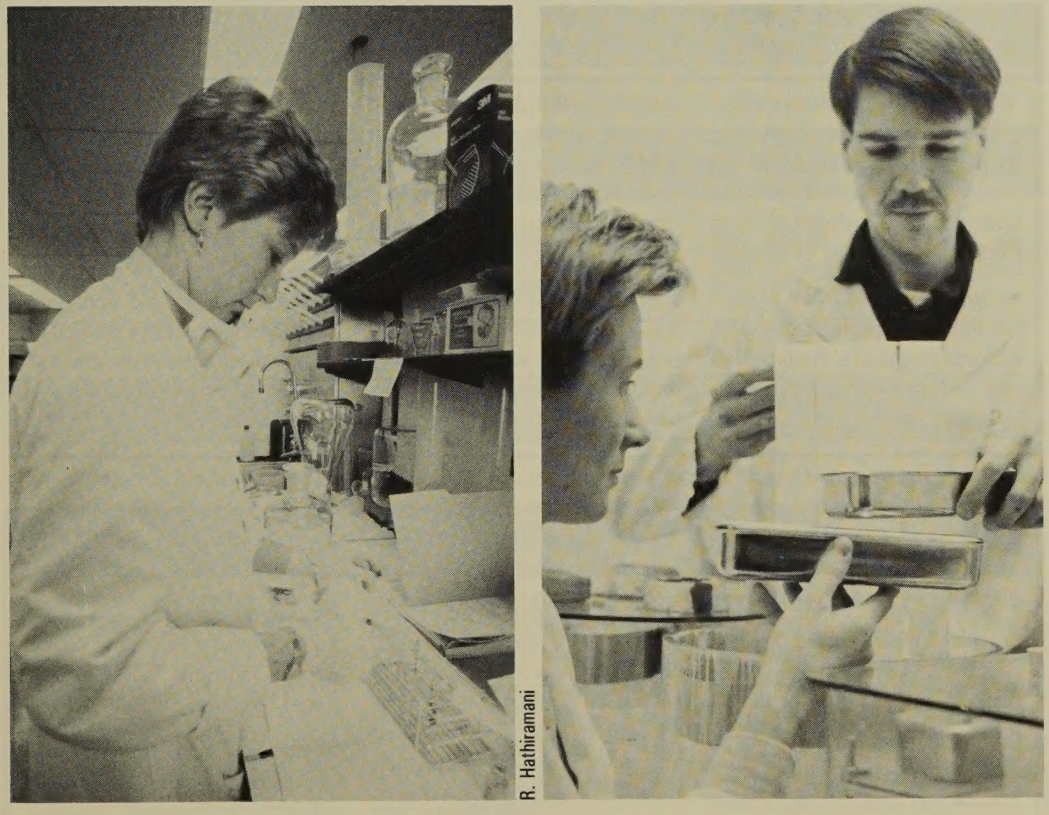
GRADUATE PROGRAM IN MEDICAL SCIENCES

This program leading to MSc and PhD degrees provides opportunities for students to explore a variety of biological and behavioural disciplines and their application to problems in basic and clinical sciences. The laboratories, teaching and clinical facilities of the teaching hospitals as well as the University's Health Sciences Centre are available to graduate students for learning and research.

The graduate program is interdisciplinary, and has faculty members from several departments. Research leading to MSc and PhD degrees is conducted in the areas of established research strength in the Faculty. Graduate work in Design, Measurement and Evaluation also leads to the MSc degree.

GRADUATE PROGRAMS IN BIOCHEMISTRY

These programs leading to MSc or PhD degrees are offered to students enrolled in the Faculty of Science. Students in Health Sciences may participate in the courses offered by the Department of Biochemistry but receive their degrees through the Faculty of Health Sciences. Many of the faculty members hold joint appointments in the Faculties of Science and Health Sciences.



R. Hathiramani

The laboratories of the teaching hospitals and the Health Sciences Centre are available to graduate students for learning and research.

GRADUATE PROGRAM IN HEALTH CARE PRACTICE

Leading to the degree of Master of Health Sciences (MHSc), this inter-professional program offers an opportunity to experienced health care practitioners for advanced preparation as clinicians. The program is designed to assist qualified individuals such as nurses, occupational therapists and physiotherapists, physicians and other health professionals to extend their knowledge and develop skills appropriate to patient care activities.

Continuing Education Programs

CLINICAL BEHAVIOURAL SCIENCES

These diploma programs attract post baccalaureate students from a variety of professional backgrounds. Designed to increase knowledge and skills in clinical assessment, management and community intervention, the courses are organized on an interdisciplinary basis, with a small group format. Students continue their usual employment, generally in an agency, hospital or institutional setting, attending classes on a part-time basis. Studies include courses on the Individual (Adult/Child), the Group, the Family, the Community, and the Organization.

CONTINUING MEDICAL AND NURSING EDUCATION

A Program in Continuing Medical Education, organized with the assistance and cooperation of a number of health associations and agencies, offers a series of refresher events each academic year. These range from evening or half-day workshops to two- or three-day conferences. Sessions are open to any health care professional. The College of Family Physicians grants credit to its members for attendance at these events.

A Committee for Continuing Nursing Education of the School of Nursing addresses the needs of the nursing profession. It plans events in conjunction with the CME office and works with the staff of Chedoke-McMaster Hospitals and Mohawk College in the provision of continuing educational experiences.

McMaster participates, in collaboration with the other Ontario universities, in a number of teleconferences that provide educational opportunities to more distant or isolated practitioners.

OCCUPATIONAL HEALTH AND SAFETY

An Occupational Health and Safety program is offered to physicians, nurses, industrial hygienists and related professionals. This diploma program is available full time to those who wish to complete the program in three months, or part time to students who wish to continue their normal employment. Special interests relevant to health and safety problems in particular industries are encouraged. Students contribute according to their own technical background and undertake appropriate laboratory work. The program concentrates on the practical problems encountered in the workplace.

ACADEMIC STUDIES

A program of Academic Studies provides a wide range of optional educational opportunities to students, faculty and other health professionals. The prime constituency is postgraduate students, although Academic Studies serves all programs, permitting issues common to a number of health care professions to be explored in an interdisciplinary setting. The educational experiences offered are in the form of small group tutorials, individually tailored learning experiences, and larger group seminars or lecture series. Recent additions to the educational offerings include Medical Ethics, Forensic Medicine, Brain and Behaviour, Palliative Care, and Computers in Health Sciences.

Outreach Programs

NORTHWESTERN ONTARIO MEDICAL PROGRAM (NOMP)

NOMP is sponsored by the Ontario Ministry of Health and McMaster University. Developed in collaboration with the Thunder Bay and Northwestern Ontario Medical Societies and administered through a Thunder Bay office with support from McMaster, it is operated for the five medical schools in Ontario and coordinated through the Council of Ontario Faculties of Medicine. NOMP provides undergraduate and postgraduate medical students with a variety of unique educational experiences in urban, rural and remote areas, with the hope that this exposure will encourage graduate physicians to consider setting up practice in Northwestern Ontario or other underserviced locations.

PERINATAL OUTREACH PROGRAM

A cooperative undertaking of Chedoke-McMaster Hospitals and the Faculty of Health Sciences, this program offers administrative and educational consultation to the more than twenty hospitals participating in the Regional Perinatal Program.

PRIMARY CARE PROGRAM (PC6)

The five health sciences faculties in Ontario universities (McMaster, Ottawa, Queens, Toronto, Western) participate in a community-based program to broaden the base of clinical education for health professionals. Sponsored by the Ontario Ministry of Health, this program provides to students a clinical experience in community-based settings involved in the delivery of comprehensive primary care. Participants include undergraduate medical students doing a clerkship in family medicine, residents in family medicine and dermatology, Year 3 and 4 and post RN stream nursing students in the BScN program, amd students in the Master of Health Sciences program.

INTERNATIONAL HEALTH

International health programs have been an interest of the Faculty since its inception. These are coordinated by the International Health Liaison Committee which is chaired by the Associate Dean (Education) or a designate, with approximately six clinical and non-clinical faculty representatives as its members. The committee meets regularly to review and support cooperative developments with such organizations as the Network of Community-Oriented Educational Institutions for Health Sciences, the Rockefeller Foundation and others. Emphasis is given to programs which emphasize innovative educational developments, particularly in developing countries where there is a need for community-oriented health sciences education, research and service.

Programs are externally funded by such agencies as the Canadian International Development Agency, the International Development Research Centre, the Rockefeller Foundation and others. The funds provide support to colleagues and agencies from abroad who wish to develop closer links with McMaster, and to McMaster faculty and students who wish to extend their professional development abroad.

Cooperative Programs

COOPERATIVE PROGRAMS

Several McMaster Faculties have cooperative arrangements for interdisciplinary study with the Faculty of Health Sciences. Such arrangements exist with the Faculty of Business (Health Care Administration); the Faculty of Endineering (Biomedical Engineering); the School of Physical Education in the Faculty of Social Sciences (Adapted Human Dynamics); and the Faculty of Science (courses in Virology).

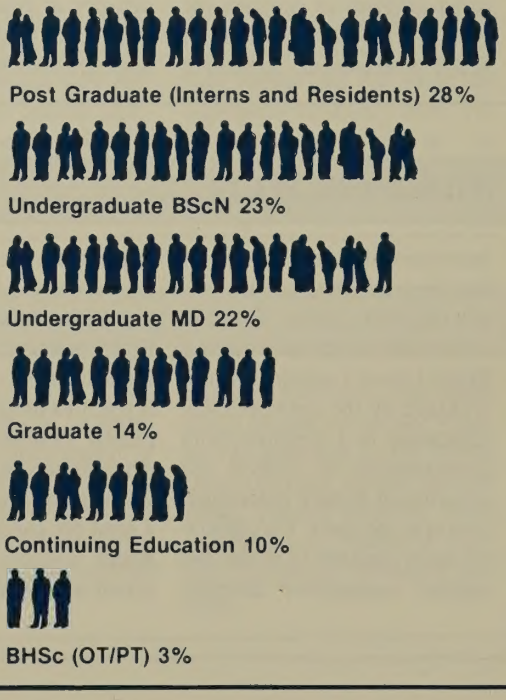
The Faculty of Health Sciences and the Faculty of Humanities offer combined teaching programs in the History of Medicine which are coordinated by the Jason A. Hannah Professor of the History of Medicine. Aspects of medical history are presented as open lectures, elective programs for medical and nursing students, seminars for residents and faculty, and undergraduate and graduate studies for history students. A broad-ranging and growing historical collection is housed in the Health Sciences Library. These two faculties also offer interdisciplinary courses in medical ethics.

Liaison Programs

MOHAWK LIAISON PROGRAMS

Mohawk College of Applied Arts and Technology and McMaster University have developed collaborative programs which give the university and the community college the benefit of each other's resources - one of the first such arrangements in Canada.

STUDENT POPULATION



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PROGRAM FOR EDUCATIONAL DEVELOPMENT (PED)

This program has the responsibility for educational research development. About 30 faculty members devote from 5 to 75 percent of their time to PED activities. The research includes studies of the process of clinical reasoning, techniques for improving teaching, health sciences informatics and methods of student evaluation.

FACULTY DEVELOPMENT

A number of opportunities exist for new faculty members to become acquainted with the various programs, and with the faculty roles which they can fill.

FACULTY ORIENTATION: Shortly after arrival faculty members are put in touch with other new members and with another faculty member who has some experience in the system. This group provides a resource to new members who may have questions or difficulties. A special orientation retreat takes place annually. The retreat provides the opportunity to meet new colleagues, the Dean, other leaders of the Faculty, and program chairmen. New members can ask specific questions about the education programs, discover more details of the curricula and the available learning resources, and discuss the organization and administration of the Faculty.

FACULTY TRAINING WORKSHOPS: These give new faculty members an excellent opportunity to delve further and prepare for particular roles. The workshops take place twice a year, in the Spring and Fall, and are strongly recommended, particularly before adopting a specific educational role. A Tutor Training Workshop provides tutors with an opportunity to gain understanding of the role of the tutor and to experience it with a simulated tutorial group before being involved in a real situation. It briefly introduces the tutor's role in evaluation, and the issues about the various learning resources. There are workshops in Clinical Teaching and the application of specific evaluation measures, e.g. the "triple jump" and the "OSCE" (pronounced "Osky" and standing for Objective Structured Clinical Evaluation). Other workshops concerning specific tasks or roles of faculty members are being revised or developed, while *ad hoc* workshops take place as required to prepare for particular courses. Watch for new developments. Requests for information should be addressed to the Office of the Associate Dean (Education).

VISITORS' WORKSHOPS: Offered twice a year to health sciences educators from around the world, these five-day workshops are designed to familiarize participants with the educational systems used by the Faculty of Health Sciences, particularly problem-based and self-directed learning.

PREPARATION OF FACULTY FOR LEADERSHIP ROLES IN EDUCATION: This program for selected faculty members takes place each year and combines courses in Education and Management with a period of apprenticeship to faculty who are already occupying leadership positions.

OTHER EDUCATIONAL OPPORTUNITIES: Other educational opportunities have been developed under the combined auspices of the Program for Educational Development, Academic Studies and the Graduate Program.

LEARNING RESOURCES

The Health Sciences Learning Resources Committee, which reports to the Health Sciences Education Committee, coordinates the policies and procedures for development and use of all types of learning resources. These resources fall into four broad groups: biomedical/health care problems; reference resources; evaluation resources; and information resources.

...continued

Learning resources...

RESOURCE LOCATION: Since resources are used very flexibly in a self-learning program, the Faculty policy has been to make them as accessible as possible in one centralized area - the Health Sciences Library.

The Morphology Laboratory in the Department of Anatomy has also developed as an important resource area for physical items such as models, plastic embedded specimens and slides, etc. The modules which have been assembled to illustrate and explain morphological issues are another innovative feature of the Faculty.

Should resources be available only within a particular department, information about their location and accessibility should be obtainable from the Library.

RESOURCE FORMATS: Various formats have been used for presenting health care problems, including paper problems, problem boxes, A/V presentations, P4 (Portable Patient Problem Pack) decks, computer assisted instruction, and simulated and real patients. Reference resources include books and other print materials, slide/tape shows, videotapes, audiotapes and films etc., morphology modules, pathology specimens, and various clinical resources.

EVALUATION RESOURCES: Special evaluation resources have been developed which include "triple jump" exercises and assessment packages (multiple choice questions, short answer questions, modified essay questions etc.) to be used either for self-evaluation or more formal evaluative exercises. A computerized bank of questions with answers and feedback to students is under development. The OSCE (Objective Structured Clinical Evaluation) is a means of assessing clinical skills and other student attributes.

ROLES FOR FACULTY MEMBERS

Recruitment to the Faculty of Health Sciences attempts to meet the defined needs and priorities of the Faculty in clinical service, research and education by selecting individuals with excellent academic credentials and with experience or an interest in teaching. It is expected that all faculty members will devote at least 20 percent of their time to various educational activities. Involvement in one or more educational programs is a requirement for promotion and tenure.

There are a number of educational roles for faculty members. Some of these are fairly conventional; others carry a somewhat unusual responsibility. One strength of the Health Sciences programs is the interaction which occurs among the different professionals. Nurses, for example, may function in the MD program, occupational therapists and physiotherapists may be involved in the Nursing program, and MDs may participate in Nursing education. Although there may be minor variations between programs, the essence of the roles is similar.

TUTORS

Tutors work with small groups of students to facilitate the learning process. It is *not* the role of the tutor to convey specific knowledge but rather to help students in the analysis of specially designed "health care problems." These problems are developed around the objectives of the various programs and are used to promote problem-based learning as well as the process of clinical reasoning.

The tutors help students to identify important concepts and issues arising from the problems and to synthesize these concepts into a problem formulation and management plan. Tutors need to be familiar with both the overall program objectives and the specific learning objectives of the particular course or unit in which they are tutoring. They can help students select problems to study as a group to best match their backgrounds and goals. Tutors should also be aware of the range of resources available so that they can advise their students on study approaches appropriate to their needs and objectives. It is the role of tutors to help their students function in cohesive and efficient groups, always encouraging the students to take an active and critical part in their learning.

The tutors are responsible for carrying out and recording the evaluative procedures which are indicated by the program planners. In turn, tutors are also evaluated by the students, and this evaluation becomes a part of the assessment of faculty performance.

Sometimes the tutor may be assisted by a co-tutor. The role of co-tutor allows new tutors to gain experience before taking on the full responsibilities of a tutor, and permits tutors to share their task with another faculty member.

RESOURCE PERSONS

In contrast to tutors, faculty resource persons are responsible for providing information to students in the area of their expertise or specialty. They may be called upon to contribute in several different ways.

LARGE GROUP RESOURCE SESSIONS: Faculty members may direct a seminar, provide a lecture such as an introductory overview of a topic or field, or conduct a clinicopathological conference or other event. Resource people are discouraged from "lecturing" and encouraged to involve the students in dialogue and questioning to make the sessions as interactive as possible.

SMALL RESOURCE SESSIONS: Resource persons are frequently consulted by individual students or small groups, who are encouraged to contact them for elucidation of particular issues which arise during tutorials, other sessions or self-study. Resource persons should avoid giving predetermined sessions and instead help the students to frame questions which will be appropriate relative to the problem issues and to which they can provide appropriate responses.

ELECTIVES: The medical students have a number of full-time electives during their programs. Faculty members may be called upon to be supervisors for an elective. The degree of faculty participation and the student's objectives should be negotiated with the student and the electives office at the outset.

DEVELOPMENT OF LEARNING RESOURCES: Faculty members may be asked to provide bibliographic or audio visual references for a problem or course of study. They may wish to make a learning resource; this should be discussed with the discipline coordinator or course planner and the coordinator for learning resources. From time to time faculty may be requested to review existing or potential learning resources or to contribute to the development of an instructional health care problem.

EVALUATION: The Faculty places emphasis on the development of evaluation methods. Members may be asked to participate in evaluation exercises or the development of self-assessment materials.

CLINICAL TEACHERS

A considerable amount of teaching is accomplished at the bedside, in ambulatory clinics, and in community settings, including family practices.
The particular skills required of the clinical teacher have not always been recognized. At McMaster this role is being studied in order to assist faculty members in this important task.

PRECEPTORS

A component of clinical skills and interviewing training runs through all programs. Individual preceptors are allocated to MD tutorial groups and have the responsibility for teaching clinical skills and their use in the clinical problem-solving process.

In the BScN program, clinical skills laboratories are introduced in the first year of the program. As students progress in the program, more complex clinical skills learning occurs in the actual clinical settings with clinical supervisors.

In the Occupational Therapy/ Physiotherapy program clinical skills, including interviewing skills, are introduced in laboratory or classroom settings in the school and are reinforced by clinicians who closely supervise individuals or small groups of students.

FACULTY ADVISORS

In many programs students are assigned or may choose individual faculty members to act as advisors. The advisor will follow the student's progress throughout the program and should know the background and special needs and goals of the student.

In the MD program advisors help to monitor the students' progress and for this purpose receive copies of all the evaluation forms for their students. Advice is given on the choice of electives, and when required on possible remedial measures. The advisors write letters of reference for the students they are advising and prepare the official transcript of a student's performance in the program.

In the BScN program, the advisor is an important resource to the student. As well, the advisor can provide advice about learning opportunities and serve as a sounding board for students' special needs. The advisor is free of any evaluative responsibilities.

In the Occupational Therapy/ Physiotherapy program both the faculty member teaching the student at that time and the instructor in the hospital where the student is gaining clinical experience act as advisor to the student.

GRADUATE STUDENT SUPERVISORS

This role is not significantly different from similar roles at other universities. At McMaster the advisor should be aware of special opportunities which are available to graduate students, such as the Academic Studies programs, the range of learning resources, and the organizational arrangements of the research programs.

OTHER ROLES

There are a number of other educational committees on which faculty members may sit and a number of senior administrative

educational roles they may fill, such as unit planner, course coordinator or supervisor, discipline consultant, or discipline coordinator. Faculty members with specific educational interests may be involved in the experimental design of evaluation processes and tools, the development of learning formats or specific learning resources (e.g. audiovisual materials, computer programs or problem development), or in faculty development and training programs such as workshops, leadership development or faculty orientation.

EVALUATION AND REWARDS

In some programs and for some roles there are formalized and clear channels by which contributions are noted and recorded in the Faculty records. The onus is, however, on individual faculty members to report their various educational contributions (even when no direct student contact is involved) to departmental chairmen prior to career development meetings. Educational involvement is essential for academic advancement and is a major consideration for the Committee on Tenure and Promotions. There are quite specific requirements for showing evidence of effective educational activity both for tenure and for promotion at all levels. These can be found in the document *McMaster University Policy and Regulations with Respect to Academic Appointment, Tenure and Promotion,* revised June 24, 1981.

THE "McMASTER APPROACH"

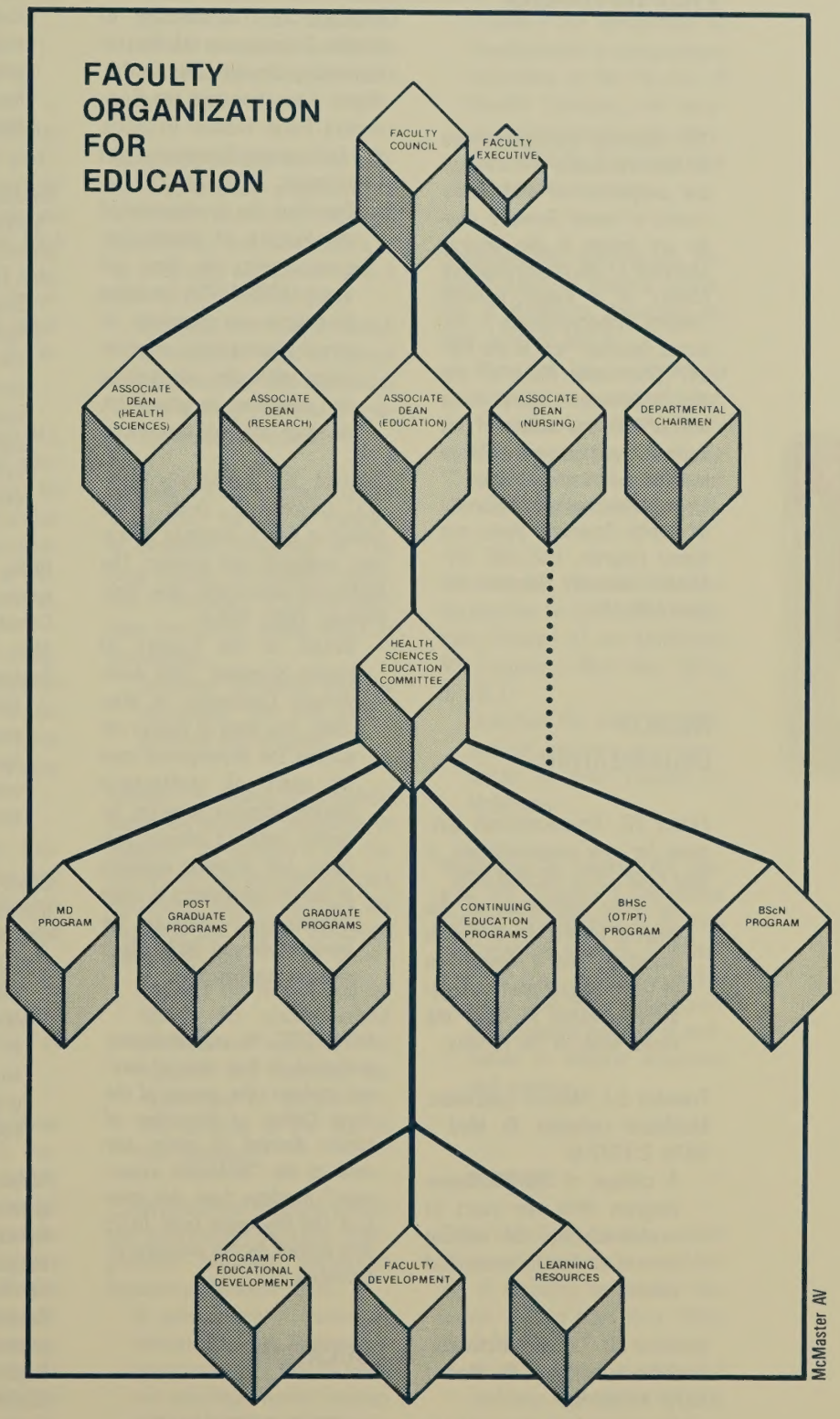
When the McMaster MD Program began in the mid 1960s it was considered to be a daring experiment in medical education, evoking world-wide attention and not a little scepticism. Now, however, there are many indications that the McMaster approach not only works, but works well. In follow-up studies of McMaster graduates conducted over the years, graduates have consistently reported that "the constellation of problem-based, self-directed learning and small group tutorials was a major strength of their medical education." Studies on the performance of graduates show several things:

- Of 371 graduates from the period 1977-80, 21% were rated by their supervisor as performing much better than fellow interns, 7.4% as weaker, and the remainder as good or better.
- More McMaster graduates receive their first choice of internship position than any other graduates of Canadian medical schools.
- No difference in performance as interns has been found between graduates who met the traditional criteria for medical school admission and those who did not.
- Ninety percent of McMaster graduates pass the Licentiate of the Medical Council of Canada (LMCC) examinations on their first attempt, with most taking it in the year of graduation. McMaster graduates have traditionally performed above the national average on the problem-solving portion of the examination, and slightly below on the multiple choice questions.
- McMaster graduates are more likely to be engaged in teaching and research as part of their practice than their contemporaries from other English language Canadian medical schools.

The innovative educational approaches developed by McMaster have provided a model for many other institutions around the world. Each year McMaster hosts visitors who come to study these approaches, and a Visitors' Workshop has been developed especially to cater to their needs. In the report of the Association of American Medical Colleges published in 1984 and entitled *Physicians for the Twenty-first Century,* the Association strongly advocated the adoption of methods that have been practised at McMaster for many years. Universities such as Harvard, New Mexico, Rush, Mercer and Southern Illinois have adopted similar methods and have been greatly assisted by McMaster faculty, and universities outside North America, such as Maastricht (Holland), Newcastle (New South Wales, Australia), Ben Gurion (Israel), Suez Canal and Bahrain (Egypt) and others have taken much from the McMaster model in setting up their own new and innovative programs.

R. Hathiramani

Each year the Faculty of Health Sciences holds Visitors' Workshops for those who wish to study the "McMaster approach."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FACULTY EXECUTIVE
ASSOCIATE DEAN (HEALTH SCIENCES)
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MD PROGRAM
POST GRADUATE PROGRAMS
GRADUATE PROGRAMS
CONTINUING EDUCATION PROGRAMS
BHSc (OT/PT) PROGRAM
BScN PROGRAM
PROGRAM FOR EDUCATIONAL DEVELOPMENT
FACULTY DEVELOPMENT
LEARNING RESOURCES
McMaster AV

SELECTED READINGS

*The following readings provide further information and a historical perspective on McMaster's Faculty of Health Sciences. Copies are lodged in the Reserve Collection of the Health Sciences Library in a binder entitled "Health Sciences Briefs — Selected Readings" and in the Faculty Orientation Room in the Health Sciences Library. Items marked with one asterisk * are in-house publications. Those mark-ed with two asterisks ** are available through the Faculty of Health Sciences' Sales and Rental Program, HSC-1G6, McMaster University, Hamilton, Ontario L8N 3Z5.*

FACULTY ORGANIZATION:

Evans JR. Organizational patterns for new responsibilities. J Med Educ 1970; 45:988-999.

An early description of the goals of the Faculty of Health Sciences, and a description of the organizational arrangements created to meet the varied goals of the Faculty.

Fraenkel GJ. Medical education: McMaster revisited. Br Med J 1978; 2:1072-6.

A critique of the McMaster program after ten years of experience by the visiting dean of an Australian medical school.

Hamilton JD. The McMaster curriculum: a critique. Br Med J 1976; 1:1191-6.

Describes the history and objectives of the McMaster MD program and its curriculum, appraises its strengths and problems, and offers suggestions for its application in other universities.

Mustard JF. The Faculty of Health Sciences at McMaster University, Canada. IN: Health, Higher Education and the Community. Paris, France: Organization for Economic Co-operation and Development, 1977; 199-210.

Describes the development of the Faculty of Health Sciences during its first ten years (1965-1975), including its policies and objectives, internal organization, relationships with the community, and programs in education, research and health services.

Mustard JF, Neufeld VR, Walsh WJ, Cochran J, (eds). New trends in health sciences education, research and service: The McMaster experience. New York: Praeger, 1982; 204 p.

Based on the Faculty of Health Sciences' 10th Anniversary Conference in May, 1980, this book of essays describes the development over 14 years of McMaster's Health Sciences program together with its special features, and presents analyses of similar experiences in other institutions. Included are followup studies of McMaster's medical graduates.

NB. In 1972, the year McMaster graduated its first class of medical students, the Journal of the Royal College of Physicians of London devoted its entire July issue to the "McMaster experiment." Readings from this issue (J R Coll Physicians Lond 1972; 6(4)) provide further historical information.

EDUCATION

— CROSS-DISCIPLINARY:

Barrows HS, Tamblyn R. Problem based learning: An approach to medical education. Springer Series on Medical Education 1980; 1.

Presents the scientific basis of problem-based learning in medical education along with a description of the approaches to problem-based learning that have been developed at McMaster University.

Neufeld VR, Barrows HS. The "McMaster philosophy": an approach to medical education. J Med Educ 1974; 49:1040-50.

Outlines the goals of the McMaster MD program and the central set of ideas which forms the basis for the selection process, the program components, the evaluation system, and the learning events and resources.

Sibley JC. Faculty of Health Sciences, McMaster University, Canada — the 1977 perspective. Med Educ 12(5)(Supplement), September 1978; 15-18.

Discusses key innovations introduced by the Faculty of Health Sciences, with a focus on the undergraduate medical program.

Spaulding WB, Neufeld VR. Regionalization of medical education at McMaster University. Br Med J 1973; 3:95-98.

Discusses the geographical area of Ontario and the ways in which the medical school and services fit these geographical and geopolitical patterns.

Walsh, W. The McMaster programme of medical education, Hamilton, Ontario, Canada: Developing problem-solving abilities. IN: Personnel for health care: Case studies of educational programs. Katz FM, Fulop T (eds). Public Health Papers 1978; 70:70-77. World Health Organization, Geneva.

Presents the rationale for the innovative approaches of the McMaster medical school to

admissions, tutorials, problem-based, self-directed learning, primary care, and examines the structure of the curriculum.

– MEDICINE:

Ali MAM, Thomas EJ, Hamilton JD, Brain MC. "Blood and guts": one component of an integrated program in biological sciences as applied to medicine. Can Med Assoc J 1977; 116:59-62.

Describes one year of the undergraduate program organized along the lines of "organ system units."

Chong JP, Neufeld V, Oates MJ, Secord M. The selection of priority problems and conditions: An innovative approach to curriculum design in medical education. In Annual Conference on Research in Medical Education, 23rd, 1984; 17-25.

Presents the results of surveys carried out within all clinical departments to develop the priority problems and conditions for curriculum development.

Ferrier BM, McAuley RG, Roberts RS. Selection of medical students at McMaster University. J R Coll Physicians Lond 1978; 12:365-78.

Provides an updated description of the system for selecting medical students at McMaster University.

** Institutional Self-Study Analysis: Synthesis '85. M.D. Program, McMaster University, 1985. Other documents in the same series include Admissions; Disciplines; Evaluation; Faculty development; Followup studies on graduates; Problem development.

Prepared for the Accreditation Visit of the Committee on Accreditation of Canadian Medical Schools March 25-29, 1985, this report includes information and comment about the broad goals, activities and resources of the Faculty of Health Sciences, but focuses on the M.D. Program and the means by which the Faculty of Health Sciences fulfills its mandate of educating future physicians.

Leeder SR, Sackett DL. The medical undergraduate programme at McMaster University: Learning epidemiology and biostatistics in an integrated curriculum. Med J Aust 1976; 2:875, 878-80.

Describes the way in which a "discipline" such as Clinical Epidemiology and Biostatistics is integrated into a problem-based curriculum.

Neufeld VR. Adventures of an adolescent: Curriculum changes at McMaster University. IN: The New Biology and Medical Education, C Friedman, EF Purcell (eds). New York 1983, Josiah Macy Jr Foundation.

Describes curricular changes introduced into the undergraduate MD program.

Neufeld VR, Chong JP. Problem-based professional education in medicine. IN: Goodlad S (ed). Education for the professions, quis custodiet? Nelson: Society for Research into Higher Education 1984; 249-256.

Reviews the history and rationale for problem-based professional education in medicine and describes the experience of McMaster's MD program in the use of this approach.

* Postgraduate medical education information package. Postgraduate program, McMaster University. Hamilton 1986.

A compendium of current information about McMaster's program in postgraduate medical education which includes a 10-page pamphlet describing the program and a 113-page program director's information manual.

Sibley JC. Postgraduate (residency) training at McMaster: a strategy for change. Med Educ 1978; 12(suppl):76-81.

Presents the background of developments in postgraduate education in the Faculty of Health Sciences, its postgraduate educational objectives, and the strategies used to implement change.

Spaulding WB, Neufeld VR. Regionalization of medical education at McMaster University. Br Med J 1973; 3:95-8.

Describes how education is arranged on a regional basis. Examples include the library and the contribution of physicians in practice to the education of medical students.

Sweeney GD, Mitchell DLM. An introduction to the study of medicine: Phase I of the McMaster MD program. J Med Educ 1975; 50:70-7.

Describes the ways in which medical students are introduced to their studies at McMaster.

Woodward CA, Neufeld VR, Norman GR, Stillman P. Simulated patients in evaluation of medical education and practice. Ann Conf Res Med Educ 1983; 22:238-44.

Deals with three perspectives on simulated patients in evaluation of medical education and practice.

– NURSING:

Callin ME. Going back to school: An open letter to a nurse thinking of returning for further education. J Cont Educ Nurs 1983; 14(4):21-26.

Examines the psychosocial problems experienced by adult learners returning to school and discusses coping mechanisms which can ease the transition.

Callin M, Ciliska D. Revitalizing problem solving with triple jump. Can Nurse 1983; 79(3):41-44.

Describes and discusses an experiential exercise (Triple Jump) which enables students to observe and evaluate their problem-solving behaviour, while simultaneously verifying their self-assessments with another person (the tutor).

Kergin DJ, Yoshida MA, Spitzer WO, Davis JE, Buzzell EM. Changing nursing practice through education. Can Nurse 1973; 69:28-31.

Reports on McMaster University's program to prepare family practice nurses, and demonstrates how changes in patterns of practice can be made through the educational process.

McKnight J, Rideout E, Brown B, Ciliska D, Patton D, Rankin J, Woodward C. The objective structured clinical examination: An alternative approach to assessing student clinical performance. JNE, forthcoming.

Describes the acceptability of the OSCE to students and tutors, the OSCE's usefulness as a method of assessing clinical skills performance, and faculty time involvement as compared to usual direct observation method of evaluation.

* Report to ORCAUSN Accreditation Committee for Program Approval – McMaster University. School of Nursing, McMaster University. Hamilton, Ontario, September 1985.

Prepared for the Accreditation Visit of the Ontario Region Canadian Association of University Schools of Nursing in September, 1985, this report describes the organizational structure, curriculum, evaluation methods and characteristics of the BScN program.

Spitzer WO, Sackett DL, Sibley JC, Roberts RS, Gent M, Kergin DJ, Hackett BC, Olynich A. The Burlington randomized trial of the nurse practitioner. N Engl J Med 1974; 290:251-56.

Studies the effectiveness of the nurse practitioner – a registered nurse with special training in primary care – in the complementary role of co-practitioner with primary care physicians in a community practice.

von Schilling K. An education process for effective teamwork. Nurs Education Today 1982; 5-7.

Describes a curricular design for professional education which incorporates communication and problem-solving skills, assertiveness, and an understanding of the functional repertoire of various professions to achieve effective inter-professional collaboration in health care practice.

– OCCUPATIONAL THERAPY AND PHYSIOTHERAPY:

Cooper B, Dolyniuk (Tremblay) ML, Westmorland M. The use of problem based learning in occupational therapy. IN: Tutorials in problem based learning: A new direction in teaching in the health professions. Willem S DeGrave, Jos HC Moust, Henk G Schmidt (eds). Rijks Universiteit, Limburg, Maastricht, The Netherlands: Network of Community Oriented Educational Institutions for Health Sciences, 1985; vol 2.

Reviews issues in the design and implementation of a problem-based curriculum in occupational therapy. This program was developed jointly by Mohawk College and McMaster University and used concepts of problem-based learning similar to those of the McMaster MD program.

Dardier E. Mohawk College physiotherapy program. Physiotherapy Canada, 1973; 25(4):237-9.

Describes the development of the problem-based curriculum in the Mohawk College Occupational Therapy Diploma Program.

* Report to the Canadian Physiotherapy Association for Accreditation of the Bachelor of Health Sciences Program. Bachelor of Health Sciences Program, McMaster University. Hamilton, Ontario, August 1986.

Prepared for the Accreditation Visit of the Canadian Physiotherapy Association in August, 1986, this report describes the historical background and current status of the Physiotherapy portion of the Bachelor of Health Sciences program at McMaster University.

** Report of the Task Force on Occupational Therapy and Physiotherapy Research, Faculty of Health Sciences, McMaster University. Prepared in conjunction with the Faculty of Health Sciences of Mohawk College and the Hamilton Clinical Teaching Units. Bachelor of Health Sciences Program, McMaster University. Hamilton, Ontario 1985.

Describes the objectives and current status of collaborative research in occupational therapy and physiotherapy between the university, community college and clinical teaching units in Hamilton.

Williams R, Baker L, Marshall J. Information searching in health care: A workbook for occupational therapists and physiotherapists. Monograph. McMaster University, Hamilton 1986.

Allows the reader to work through the library resources and services which are specifically focused on the information needs of occupational therapists and physical therapists. It also provides infor-

mation on how to critically appraise clinical articles once they have been found.

– GRADUATE EDUCATION:

* Graduate program information package. Health Sciences Graduate Program, McMaster University. Hamilton 1986.

A compendium of information about McMaster's Health Sciences Graduate Program containing a Graduate Calendar; a booklet on the admissions process for the MSc/PhD level Graduate Program in Medical Sciences; a booklet on the MSc program in Design, Measurement and Evaluation; and a brochure on the MHSc program in Health Care Practice.

– CONTINUING EDUCATION:

* Baskin M. 'CBS' creates a regional network for the helping professions. Network January 1986. McMaster University, Hamilton.

Reviews the Clinical Behavioural Sciences post-baccalaureate diploma and selected studies program developed by McMaster's Department of Psychiatry. This unique part-time educational program provides allied health professionals with the opportunity to enhance their knowledge and skills in clinical assessment and management.

* Continuing Medical Education Program Report, 1978-84. Continuing Medical Education Program, March 1985. McMaster University, Hamilton.

A report on the Continuing Medical Education program prepared for the March, 1985 Accreditation Review.

* Cochran J. The Occupational Health Program. Network 1985; 2(5). McMaster University, Hamilton.

Describes the educational, research and health services components of McMaster's Occupational Health Program.

Davis D, Feldman E. The McMaster CME Society. Med Educ 1982; 57:476-80.

Registration for CME events at McMaster University may be achieved by registering for each event or by a prepaid annual fee; this report discusses the objectives of this "CME Society" and the extent to which they have been met.

Davis D, McConvey G, Neufeld VR, Norman CG, Woodward CA. The use of standardized (simulated) patients as a needs determining tool in continuing medical education. In Annual Conference on Research in Medical Education, 24th, 1985, 201-5.

Presents the methodology and results of a study of the standardized patient as a highly relevant and useful CME "package" for needs assessment.

Feldman E, Davis D. Why do physicians attend short courses as a form of continuing medical education? A survey of participants. Cont Med Educ News 1980; 9.

Presents results of a survey of participants in CME short courses.

McFarlane AH, Joyner J, Horn D, Levine LE. The Clinical Behavioural Sciences Program: Post-professional education in mental health. J Med Ed 1980; 55(1): 70-71.

Describes the Clinical Behavioural Sciences program, which was designed to provide those in the allied health professions with the opportunity to enhance their knowledge and skills in clinical assessment and management.

Rudnick KV, Fraser WP, Sibley JC, Neufeld VR, Sackett DL, Gerrard BA. The impact of continuing education on the quality of patient care. Can Fam Phys 1983; 29:810-18.

Discusses a project which gave learning packages to physicians and later measured the impact on patient care.

– EDUCATIONAL OUTREACH:

Edwards NC, Tompkins CH. Building a foundation for primary health care: An educational approach. Nurse Educator (forthcoming).

Describes a problem-based innovative educational program developed at McMaster University with funding from the Canadian International Development Agency to strengthen the primary health care skills of nurse tutors and service-providers from the Aga Khan University School of Nursing and Hospital, and the Central Health Board in Pakistan.

* Green S. Reaching out – the "international connection." Network Dec 1984. McMaster University, Hamilton.

A description of the activities of McMaster's International Health Liaison Committee.

– EDUCATIONAL RESEARCH AND DEVELOPMENT:

** Activities of the Program for Educational Development. Program for Educational Development, McMaster University. Hamilton, Ontario, 1986.

A document prepared for an external review which overviews the Program for Educational Development, one of the groups responsible for educational research and development.

— EVALUATION:

Ferrier BM, Woodward CA. Career choices, work patterns and perception of undergraduate medical education of McMaster University graduates: Comparison between men and women. Can Med Assoc J 1982; 126:1411-1415.

Differences were noted in the replies of men and women regarding their perceptions of their medical education. In further career decisions, women appear to be more influenced by their spouses than men.

Ferrier BM, Woodward CA. Does premedical academic backgound influence medical graduates' perceptions of their medical school or their subsequent career paths and decisions? Med Educ 1983; 17:72-78.

Neither completion of science courses that are usually required for admission to other medical schools nor achievement of high grades in premedical studies has an important impact on graduates' perceptions of their medical curriculum or on their evaluation of their preparation for postgraduate training.

Harper AC, Roy WB, Norman GR, Rand CA, Feightner JW. Methodological difficulties in clinical skills evaluation. Med Educ 1983; 17(1):24-27.

Presents a case-specific method of evaluating clinical skills. The instrument is described together with its evaluation based on results from 92 medical students.

Maudsley RF, Lamont JA. An evaluation form for the assessment of surgical skills of residents. Ann Roy Coll Phys Surg Can 1986; 19(6):457-60.

Discusses the assessment of the surgical skills of trainees through the use of a summary rating form. The evaluation form used in the training program in obstetrics and gynecology at McMaster is used as an example.

McAuley R, Woodward CA. Faculty perceptions of the McMaster MD program. J Med Educ 1984; 59:842-42.

A random sample of faculty was taken to gain their perceptions of the undergraduate MD program.

Neufeld VR. Student assessment in medical education: a Canadian case study. Assessment and Evaluation in Higher Education 1982; 7(3):203-15.

Describes the principles upon which the student evaluation system is based, and provides a summary of how evaluation is conducted. Several problems of this approach are noted, along with a prospectus on future developments.

Painvin C, Norman GR, Neufeld VR, Walker I, Whelan G. The "triple jump" exercise — a structured measure of problem solving and self directed learning. In Annual Conference on Research in Medical Education, 18th, 1979, 73-77.

Describes a study to test the reliability of the "triple-jump" (a structured oral examination used at McMaster University).

Powles ACP, Wintrip N, Neufeld VR, Wakefield JG, Coates G, Burrows J. The "triple-jump" exercise — further studies of an evaluative technique. In Annual Conference on Research in Medical Education, 20th, 1981, 74-79.

A followup to the above study, this paper attempts to further assess the reliability of this evaluation instrument.

Simpson MA. Medical student evaluation in the absence of examinations. Med Educ 1976; 10(1):22-26.

Describes the rationale and methodology of a structured evaluation system based on validated self-assessment and without formal examinations, as developed by the MD program at McMaster University.

Stratford P, Pierce-Fenn H. Modified essay question. Phys Ther 1985; 65:1075-79.

Describes the use of a modified essay question as an evaluation tool for a second-year physiotherapy student population.

Stratford P, Pierce-Fenn H. Predictive validity of the modified essay question. Physiother Can 1985; 37:356-59.

Part of an ongoing project on student evaluation, this paper describes how the modified essay question was used as a tool to predict clinical success in second-year physiotherapy students.

Woodward CA. Measuring learning climate at McMaster: Conceptualization, outcome and challenge. Part of a symposium on medical learning. Ann Conf Res Med Educ 1980; 19:371-79.

Woodward CA. Self-evaluation in medical education at McMaster University. Ann Conf Res Med Educ 1981; 20:237.

Part of a symposium entitled "Self-evaluation in undergraduate and graduate medical education" in which three medical schools describe their experience with student self-evaluation.

Woodward CA, Ferrier BM. Career development of McMaster University medical graduates and its implications for Canadian medical manpower. Can Med Assoc J 1982; 127:477-80.

A study of the career paths and decisions, and the factors influencing the decisions, of the first six graduating classes of Mcmaster University's medical school.

Woodward CA, Ferrier BM. Perspectives of graduates two to five years after graduation from a three-year medical school. J Med Educ 1982; 57:294-302.

Presents the information obtained from a survey of McMaster medical graduates regarding their perceptions of curriculum features and

length of the McMaster curriculum and relates it to background characteristics of the graduates.

Woodward CA, Ferrier BM. The content of the medical curriculum at McMaster University: Graduates' evaluation of their preparation for postgraduate training. Med Educ 1983; 17:54-60.

Graduates were surveyed to obtain information regarding their perceived preparation for postgraduate work. They were asked to compare their preparation with that of fellow trainees.

Woodward CA, McAuley RG. Can the academic background of medical graduates be detected during internship? Can Med Assoc J 1983; 129:567-69.

Internship supervisors rated the performance of McMaster medical graduates. No difference was observed between performance of students who had the usual academic prerequisites for medical school entry and those who did not have these prerequisites.

– LEARNING RESOURCES:

Barrows HS, Tamblyn RM. The Portable Patient Problem Pack (P4): A problem based learning unit. J Med Educ 1977; 52: 1002-4.

Describes a problem-based learning resource which presents a clinical simulation in card format.

Brain EA, Bidwell CM. How to construct an audiovisual programme. IN: How To Do It, 2nd Ed., 146-72, British Medical Association, London, 1985.

Provides guidelines for producing the elements of an audiovisual program including script, visuals, sound track and printed materials.

Cooper BA. The P-4 Deck (Portable Patient Problem Pack): Educational Tool of the Future? Cdn J Occup Ther 1983; 50:21-24.

Describes the structure and use of the Portable Patient Problem Pack (P-4 Deck) as a clinical simulation and educational tool. Originally designed to present medical diagnostic problems, the P-4 Pack has been adapted by the author for use in occupational therapy.

Dickinson CJ, Goldsmith CH, Sackett DL. MacMan: a digital computer model for teaching some basic principles of hemodynamics. J of Clinical Computing 1973; 2(4):42-50.

Describes one of the computer-based physiologic models — the cardiovascular model.

** Learning Resources: A guide to use and development. Health Sciences Learning Resources Committee, McMaster University. Hamilton, Ontario, 1983/84.

The academic programs at McMaster depend heavily on the use of learning resources. This manual provides information on how resources may most easily be accessed, used or prepared.

** Learning Resources Sales: Rentals Catalogue. Faculty of Health Sciences, McMaster University. Hamilton, Ontario.

A catalogue of the available audio visual learning resources which have been produced at McMaster University.

Neufeld VR, Spaulding WB. Use of learning resources at McMaster University. Br Med J 1973; 3:99-101.

A summary of the ways in which resources such as audio visual aids, print material, problem-based learning resources, and other resources are used in the education programs at McMaster.

Pallie W, Brain E. "Modules" in morphology for self-study: a system for learning in an undergraduate medical programme. Med Educ 1978; 12:107-13.

A paper describing the imaginative contribution of morphologists to the education of medical students.

Robinow BH. Audio visuals and non-print learning resources in a Health Sciences Library. J Biocommun 1979; 6(1):14-19.

A description of the ways in which resources developed by McMaster's Faculty of Health Sciences to accompany its self-directed, problem based approach to learning were incorporated into the McMaster Health Sciences Library.

FACULTY ROLES:

Barrows HS, Tamblyn R, Jenkins M. Preparing faculty for innovative educational roles. J Med Educ 1976; 51:592-94.

Describes workshops for health sciences educators on the role of the tutor in small group, problem-based learning.

** Neufeld V. Faculty resources for education. Health Sciences Education Committee, McMaster University, Hamilton 1986.

Produced by the Health Sciences Education Committee, this report reviews the status of faculty resources for education and outlines a general strategy for their deployment.

* Pedagogue 1984; 12(3). McMaster University, Hamilton.

An entire issue of devoted to a discussion of faculty development in health sciences and the activities sponsored by the Faculty Development Committee of the Program for Educational Development in McMaster's Faculty of Health Sciences.

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